

Notice of Allowability

Application No.

10/783,531

Examiner

Brian L. Albertalli

Applicant(s)

LI, JIN

Art Unit

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 20 February 2004.
2. ☒ The allowed claim(s) is/are 1-39.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Allowable Subject Matter

1. Claims 1-39 allowed.
2. The following is an examiner's statement of reasons for allowance:

The closest prior art of record is Geiger et al. (U.S. Patent 7,275,036). Geiger et al. disclose a similar solution for lossless coding using a reversible modified discrete cosine transform (referred to as IntMDCT). As with Applicant's invention, Geiger et al. use a matrix lifting scheme to make the well-known MDCT (which is not reversible) a reversible function. Also, Geiger et al. take an integer vector as an input and provide an integer vector as output.

However, the solution disclosed by Geiger et al. differs in the matrix lifting steps. In particular, Geiger et al. do not disclose or suggest splitting an input integer vector into two complex integer vectors of equal size, transforming a fixed complex integer vector via a float transform, rounding the transformed vector, and adding or subtracting the resulting vector from one of the complex vectors that was not kept fixed. Since these steps are required by independent claims 1 and 21, these claims are allowed.

In addition, independent claims 17 and 19 are directed to a coding process and a decoder system, respectively, wherein either RMDCT (in the case of the coder) or inverse RMDCT (in the case of the decoder) operations are performed. Clearly, Geiger et al. do not disclose an RMDCT or inverse RMDCT operation (IntMDCT is not equivalent to the RMDCT). Furthermore, Geiger et al. do not disclose or suggest any

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bitstream assembly or unassembly operations performed on a group of RMDCT coefficients. For these reasons claims 17 and 19 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Oikawa et al. (U.S. Patent 6,011,824) disclose a decoder that uses a reverse MDCT (as opposed to a *reversible* MDCT). Huang et al. (*Integer Fast Modified Cosine Transform*) disclose an additional description of IntMDCT. Prasad et al. (*Analyzing Reversible Lapped Transforms Using Reng Probing*) does not qualify as prior art, but is included herein because RMDCT and IntMDCT are compared and the differences between the two described. Li (*Low Noise Reversible MDCT (RMDCT) and Its Application in Progressive-to-Lossless Embedded Audio Coding*) is a paper written by the applicant that does not qualify as prior art, but acknowledges Geiger et al. independently developed the IntMDCT solution with matrix lifting.


4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. Albertalli whose telephone number is (571) 272-7616. The examiner can normally be reached on Mon - Fri, 8:00 AM - 5:30 PM, every second Fri off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BLA 10/12/07



DAVID HUDSPETH
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TECHNOLOGY CENTER 2626